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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Akimasa Tanaka

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DRINKER BIDDLE & REATH (DC)
1500 K STREET, N.W.
SUITE 1100
WASHINGTON, DC 20005-1209

EXAMINER

QUINTO, KEVIN V

ART UNIT

PAPER NUMBER

2826

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/585,314	TANAKA, AKIMASA	
	Examiner	Art Unit	
	Kevin Quinto	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-10 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/6/06, 1/10/08, 1/15/08, 2/27/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 11-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 30, 2008.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Yang et al. (United States Patent Application Publication No. US 2002/0053872 A1).
4. In reference to claim 1, Yang et al. (United States Patent Application Publication No. US 2002/0053872 A1, hereinafter referred to as the “Yang” reference) discloses a structure which meets the claim. Figure 3 of Yang discloses a semiconductor light-emitting device comprising a multilayer structure which includes a plurality of laminated compound semiconductor layers (19, 20, 22, and 26). The multilayer structure generates light and has a light exit face for emitting the generated light and a glass substrate (10) optically transparent to the light being fixed to the light exit face by way of a film made of silicon oxide (14).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (United States Patent Application Publication No. US 2002/0053872 A1) in view of Eliashevich et al. (WO 02/41406 A1).

7. In reference to claim 9, figure 3 of Yang shows that the front face of the glass substrate (10) is in contact with the film made of silicon oxide (14). Yang does not disclose that the rear face of the glass substrate has a lens part for receiving the light emitted from the multilayer structure. However such a structure is well known in the art. Eliashevich et al. (WO 02/41406 A1, hereinafter referred to as the "Eliashevich" reference) discloses a substrate which has a lens part for receiving light emitted from the light emitting device in figure 4. Eliashevich discloses that such a structure improves light extraction (p. 8, lines 7-12) which is a known goal in the art (p. 2, lines 17-22).

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8. In reference to claim 10, Yang does not disclose the exact raised portion with regard to the lens as that claimed by Applicant. However:

The shape, size, dimension differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

Therefore claim 10 is not patentable distinguishable over Yang and Eliashevich.

9. Claims 1, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kish, Jr. et al. (USPN 5,724,376) in view of Yang et al. (United States Patent Application Publication No. US 2002/0053872 A1).

10. In reference to claim 1, Kish, Jr. et al. (USPN 5,724,376, hereinafter referred to as the "Kish" reference) discloses a similar structure. Figures 4, 6a, 6b, 7, 8b, and 8c of Kish discloses a semiconductor light-emitting device comprising a multilayer structure which include a plurality of laminated compound semiconductor layers (51, 53, 55, VCSEL DEVICE LAYERS, 101, 125, LATTICE-MATCHED VCSEL LAYERS). The multilayer structure generates light and has a light exit face for emitting the generated light and a substrate (TS) optically transparent to the light being fixed to the light exit face by way of a film made of silicon oxide. Kish does not disclose the use of a glass as the optically transparent material. However Yang discloses that known use of glass as an optically transparent material for semiconductor light emitting devices (p. 2, paragraph 21). The applicant is reminded in this regard that it has been held that a mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. See *In re Leshin* 227 F.2d 197, 125 USPQ 416

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(CCPA 1960) and also *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore this limitation is not patentable over Kish and Yang.

11. With regard to claim 9, Kish discloses that the front face of the substrate is in contact with the film made of silicon oxide. The rear face of the glass substrate has a lens part which receives light from the multilayer structure.

12. In reference to claim 10, Kish does not disclose the exact raised portion with regard to the lens as that claimed by Applicant. However:

The shape, size, dimension differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

13. Therefore claim 10 is not patentable distinguishable over Kish and Yang.

14. Claims 2-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kish, Jr. et al. (USPN 5,724,376) in view of Yang et al. (United States Patent Application Publication No. US 2002/0053872 A1) as applied to claim 1 above and further in view of Quintana (USPN 4,956,683).

15. With regard to claim 2, Kish discloses (column 6, lines 40-54) that the multilayer structure includes a first distributed Bragg reflector (DBR) layer of a first conductive type, a first cladding layer of the first conductive type, an active layer, a second cladding layer of a second conductive type, and a second DBR layer of the second conductive type sequentially laminated as the plurality of compound semiconductor layers. The multilayer structure has a multilayer region which partially includes the first DBR layer, first cladding layer, active layer, second cladding layer, and second DBR layer. The first DBR layer is arranged between the first cladding layer and the film made of silicon

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oxide. Kish does not disclose the use of an insulated or semi-insulated current narrowing region which surrounds the multilayer region. However the use of such a structure is well known in the art. Quintana (USPN 4,956,683) discloses the use of such structures in figures 4 and 8. Quintana further discloses that such insulation is desirable in the art since electrical isolation is a known goal in the art (column 1, 13-26). In view of Quintana, it would therefore be obvious to use an insulated or semi-insulated current narrowing region which surrounds the multilayer region.

16. With regard to claim 3, a contact layer of the first conductive type is positioned between the film made of silicon oxide and the first DBR layer.

17. In reference to claim 4, Kish discloses a light-emitting part including the multilayer region and a pad electrode mounting part (59, CONTACT METALLIZATION, 129) which partially includes the first DBR layer, first cladding layer, active layer, second cladding layer, and second DBR layer. The semiconductor light-emitting device further comprises a first pad electrode (59, CONTACT METALLIZATION, 129) arranged on the light-emitting part and electrically connected to the multilayer region. A second pad electrode 959, CONTACT METALLIZATION, 129) is arranged on the pad electrode mounting part and electrically connected to the contact layer.

18. With regard to claim 6, Kish discloses placing bump electrodes on the first and second pad electrodes (column 5, lines 58-60).

19. With regard to claim 7, there is a plurality of the arranged light-emitting parts.

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20. In reference to claim 8, a light-reflecting film (59, CONTACT METALLIZATION, 129, METAL HEATSINK) is disposed on the second DBR layer and covers the multilayer region.

Allowable Subject Matter

21. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter: the examiner is unaware of any prior art which suggests or renders obvious a semiconductor light-emitting device having a glass substrate coupled to a compound semiconductor light-emitting device via a film made of silicon oxide in combination with the suggested DBR, cladding, and pad electrode structures which are in contact with a contact layer by an opening formed between a light-emitting portion and a pad electrode mounting portion as suggested by the applicant in claim 5.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quinto whose telephone number is (571) 272-1920. The examiner can normally be reached on M-F 8AM-5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin Quinto/
Examiner, Art Unit 2826

/Evan Pert/
Primary Examiner, Art Unit 2826